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EXAMINER	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/509,082	FERRIEUX ET AL.	
	Examiner	Art Unit	
	Michael C. Colucci	2609	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 9-26 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 9-26 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☒ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date 9/28/2004.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 12 recites the limitation "the articulation model" in claim 12 with two occurrences. There is insufficient antecedent basis for this limitation in the claim.

3. Claim 14 recites the limitation "the decoding step". There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in **Graham v. John Deere Co., 383 U.S. 1, 148 USPQ 459 (1966)**, that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows: **(See MPEP Ch. 2141)**

a. Determining the scope and contents of the prior art;
b. Ascertaining the differences between the prior art and the claims in issue;
c. Resolving the level of ordinary skill in the pertinent art; and
d. Evaluating evidence of secondary considerations for indicating obviousness or nonobviousness.

5. Claims 9, 15-16, 22-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Brown et al US 5805832 (herein after Brown)* further in view of Rebel et al US 4570236 (herein after Rebel).

Re claim 9, "translating input data" into "lexical output sequence including a step of decoding the input data", Brown teaches portions of text input into a system where the input is decoded and portions of text are outputted (Brown Fig. 1). Note: The use of sub-lexical will be construed to mean words that are part of a sequence of words. "Sub-lexical entities" identified by using a "first said model" using "predetermined sub-lexical entities" and "second said model" having "combinations" of entities associated with a "likelihood", Brown teaches a plurality of models for text to text translation using a parametric model with reference to a translation model, where a parametric language model generates probabilities (Brown claim 1). Brown teaches two language models where the first model assigns a probability to any portion of the source text (English) (Brown col 8 line 1-10) and the second model assigns a conditional probability to a portion of the target language (French) given any portion of the source language (English) (Brown col 8 line 1-10). Combinations of entities is broad and construed as various matches found in the a model; Brown also teaches a decoder that finds a number of portions of English text given a portion of French text (Brown col 8 line 1-10). Brown teaches a target structure language model used to estimate a first score proportional to the probability of occurrence of each intermediate target structure where scores are combined to produce a target hypothesis match score (Brown col 3 line 6-15). "Their combination intended to be stored together", Brown teaches combined

scores called a target hypothesis match score (Brown col 3 line 6-15) where where on or more of the transformed target hypothesis may be stored in memory (Brown col. 3 line 20-25). "Storage arrangement having plural memory areas", Brown teaches probabilities stored in memory derived from Viterbi alignments (Brown col 74 line 1-11). However Brown fails to teach having "an address equal to a value" produced by a "predetermined scalar function". Rebel teaches a plurality of stores storing coordinate spacing of array points in individual storage elements where coordinates are assigned to different store addresses in response to the selected storing function (Rebel claim 3). Therefore, the combined teaching of Brown and Rebel would have rendered obvious a translation system that takes in text and outputs text through a decoder, where two models are used to generate likelihood (probability) based on combinations of word elements and stored within memory at an address based on a predetermined function.

Re claim 15, "decoding step", the combined teaching of Brown and Rebel discloses portions of text input into a system where the input is decoded and portions of text are outputted (Brown Fig. 1). A first and second model where "Markov model having states representing" "possible modeling of each sub-lexical entity in a given translation language", the combined teaching discloses a plurality of models for text to text translation using a parametric model with reference to a translation model, where a parametric language model generates probabilities (Brown claim 1). Brown teaches two language models where the first model assigns a probability to any portion of the source text (English) (Brown col 8 line 1-10) and the second model assigns a conditional probability to a portion of the target language (French) given any portion of the source

language (English) (Brown col 8 line 1-10). "Viterbi algorithm applied conjointly" with a "Markov" model, the combined teaching discloses an alignment between a target structure and source structure called a Viterbi alignment where possible alignments for any particular translation are found (Brown col 43 line 1-13). The combined teaching also discloses a Markov model having probability of a transition between states associated with the model (Brown col 31 line 6-13).

Claim 16 has been analyzed and rejected with respect to claim 9. Claim 16 is the system of the method of claim 9.

Claim 22 has been analyzed and rejected with respect to claim 15. Claim 22 is the system of the method of claim 15.

Claim 23 has been analyzed and rejected with respect to claim 9. Claim 23 teaches the limitations discloses within claim 9. A state is construed to mean the representation of sub-lexical entities. The combined teaching discloses a "transducer" to perform the same functions together with the decoding operation (Brown Fig. 2). "Distinct knowledge sources", the combined teaching discloses two separate models for English and English to French simultaneously operating with a decoder (Brown Fig. 2).

Claim 24 has been analyzed and rejected with respect to claim 23. Claim 24 is the system of the method of claim 23.

Claim 25 has been analyzed and rejected with respect to claim 23. Claim 25 teaches the limitations disclosed within claim 23.

Claim 26 has been analyzed and rejected with respect to claim 9. Claim 26 teaches the limitations disclosed within claim 9.

6. **Claims 10-11 and 17-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Brown et al US 5805832 (herein after Brown)* in view of Rebel et al US 4570236 (herein after Rebel) and further in view of *Larson US 5867649.***

Re claim 10, "predetermined scalar function is of an injective nature", the combined teaching of Brown and Rebel disclose a plurality of stores storing coordinate spacing of array points in individual storage elements where coordinates are assigned to different store addresses in response to the selected storing function (Rebel claim 3). However the combined teaching fails to disclose injective nature. Larson teaches functions with special properties where a function is called bijective if it is both inject and surjective (Larson col 10 line 15-20). Therefore, the combined teaching of Brown, Rebel, and Larson would have rendered obvious a function that is of an injective nature.

Re claim 11, "predetermined scalar function is of a surjective nature", the combined teaching of Brown and Rebel disclose a plurality of stores storing coordinate spacing of array points in individual storage elements where coordinates are assigned to different store addresses in response to the selected storing function (Rebel claim 3). However the combined teaching fails to disclose injective nature. Larson teaches functions with special properties where a function is called bijective if it is both injective and surjective (Larson col 10 line 15-20). Therefore, the combined teaching of Brown, Rebel, and Larson would have rendered obvious a function that is of a surjective nature.

Claim 17 has been analyzed and rejected with respect to claim 10. Claim 17 is the system of the method of claim 10.

Claim 18 has been analyzed and rejected with respect to claim 11. Claim 18 is the system of the method of claim 11.

7. **Claims 12 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Brown et al US 5805832 (herein after Brown),* Rebel et al US 4570236 (herein after Rebel) in view of *Larson US 5867649* and further in view of Kitamura et al US 4568912 A (herein after Kitamura).**

Re claim 12, "sub-lexical model includes models of sub-lexical entities", the combined teaching of Brown, Rebel, and Larson disclose a plurality of models for text to text translation using a parametric model with reference to a translation model, where a parametric language model generates probabilities (Brown claim 1). "Different states", a state is construed to mean the representation of sub-lexical entities. "Articulation model", an articulation model is construed to be a lexical or sub-lexical model as described in claim 1, where the articulation model demonstrates the same characteristics of entity combinations. "First predetermined number" and "second predetermined number" peculiar to the "sub-lexical model" and "Articulation model", the combined teaching discloses a plurality of models for text to text translation using a parametric model with reference to a translation model, where a parametric language model generates probabilities (Brown claim 1). The combined teaching also discloses two language models where the first model assigns a probability to any portion of the source text (English) (Brown col 8 line 1-10) and the second model assigns a conditional probability to a portion of the target language (French) given any portion of

the source language (English) (Brown col 8 line 1-10). "Predetermined scalar function is intended to be applied", the combined teaching discloses a plurality of stores storing coordinate spacing of array points in individual storage elements where coordinates are assigned to different store addresses in response to the selected storing function (Rebel claim 3). However the combined teaching fails to disclose "states number contiguously and have a total number less than or equal to a first predetermined number", it is unclear as to what this limitation implies and will therefore be construed as states numbered having a total number less than or equal to a model. Kitamura teaches a digital translation system where the number of samples transferred to memory M2 is much smaller than the total number of digital samples stored in memory M1 (Kitamura col 4 line 5-12). Therefore, the combined teaching of Brown, Rebel, Larson, and Kitamura would have rendered obvious entities or states that are numbered and have number less than the total number in a first and second model used to find entities and combinations of entitles in memory where a storage function is applied.

Claim 19 has been analyzed and rejected with respect to claim 12. Claim 19 is the system of the method of claim 12.

8. **Claims 13-14 and 20-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Brown et al US 5805832 (herein after Brown),* Rebel et al US 4570236 (herein after Rebel), *Larson US 5867649* in view of Kitamura et al US 4568912 A (herein after Kitamura) and further in view of Bacou et al US 4811361 (herein after Bacou).**

Re claim 13, "Predetermined number of the number of a state of a sub-lexical entity identified", the combined teaching of Brown, Rebel, Larson, and Kitamura disclose a plurality of stores storing coordinate spacing of array points in individual storage elements where coordinates are assigned to different store addresses in response to the selected storing function (Rebel claim 3). The combined teaching also discloses two language models where the first model assigns a probability to any portion of the source text (English) (Brown col 8 line 1-10) and the second model assigns a conditional probability to a portion of the target language (French) given any portion of the source language (English) (Brown col 8 line 1-10). "Predetermined scalar function is intended to be applied", the combined teaching discloses a plurality of stores storing coordinate spacing of array points in individual storage elements where coordinates are assigned to different store addresses in response to the selected storing function (Rebel claim 3). However the combined teaching fails to teach "concatenation of the remainder of a integer division" using a first and second number from a first and second model. Bacou teaches the remainder from division in the form of two words of 16 bits present in two registers of the key generator, and these two key words are concatenated at the end of the frame. Therefore, the combined teaching of Brown, Rebel, Larson, Kitamura, and Bacou would have rendered obvious concatenation of a first remainder produced from a division with a second remainder produced from a division used by a function to create an address.

Re claim 14, "decoding step", the combined teaching discloses portions of text input into a system where the input is decoded and portions of text are outputted (Brown

Fig. 1). A first and second model where "Markov model having states representing" "possible modeling of each sub-lexical entity in a given translation language", the combined teaching discloses a plurality of models for text to text translation using a parametric model with reference to a translation model, where a parametric language model generates probabilities (Brown claim 1). Brown teaches two language models where the first model assigns a probability to any portion of the source text (English) (Brown col 8 line 1-10) and the second model assigns a conditional probability to a portion of the target language (French) given any portion of the source language (English) (Brown col 8 line 1-10). "Viterbi algorithm applied conjointly" with a "Markov" model, the combined teaching discloses an alignment between a target structure and source structure called a Viterbi alignment where possible alignments for any particular translation are found (Brown col 43 line 1-13). The combined teaching also discloses a Markov model having probability of a transition between states associated with the model (Brown col 31 line 6-13).

Claim 20 has been analyzed and rejected with respect to claim 13. Claim 20 is the system of the method of claim 13.

Claim 21 has been analyzed and rejected with respect to claim 14. Claim 21 is the system of the method of claim 14

Examiner's Note

The referenced citations made in the rejection(s) above are intended to exemplify areas in the prior art document(s) in which the examiner believed are the most relevant

to the claimed subject matter. However, it is incumbent upon the applicant to analyze the prior art document(s) in its/their entirety since other areas of the document(s) may be relied upon at a later time to substantiate examiner's rationale of record. A prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention. W.L. Gore & associates, Inc. v. Garlock, Inc., 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983), cert. denied, 469 U.S. 851 (1984). However, "the prior art's mere disclosure of more than one alternative does not constitute a teaching away from any of these alternatives because such disclosure does not criticize, discredit, or otherwise discourage the solution claimed...." In re Fulton, 391 F.3d 1195, 1201, 73 USPQ2d 1141, 1146 (Fed. Cir. 2004).

Contact

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael C. Colucci whose telephone number is (571)272-1847. The examiner can normally be reached on 7:30 am - 5:00 pm , alt. Fridays. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vu Le can be reached on (571)-272-7332. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

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